



hereby certifies in accordance with TÜV CERT
procedure that

ELITEGROUP COMPUTER SYSTEMS CO., LTD.
ECS MANUFACTURING (SHENZHEN) CO., LTD.
ELITE TECHNOLOGY (SHENZHEN) CO., LTD.

No. 20 & No. 26, Free Trade Zone, Shatoujiao, Shenzhen City, Guangdong Province, China

has established and applies a quality system for

**Design, Manufacturing and Sales of Mainboards,
Personal Computers, Notebooks and Peripheral Cards**

An audit was performed, Report No. 2.5-1585/2000

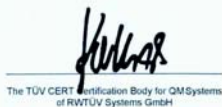
Proof has been furnished that the requirements according to

ISO 9001 : 2000 / EN ISO 9001 : 2000 / JIS Q 9001 : 2000 / ANSI/ASQC Q9001 : 2000

are fulfilled. The certificate is valid until 27 January 2007

Certificate Registration No. 04100 2000 1325

The company has been certified since 2000





ISO14001 CERTIFICATE

Certificate NO.: 05-2001-065

We hereby certify that
ECS Manufacturing(Shenzhen) Co.,Ltd
by reason of its
Environmental Management System
has been awarded this certificate for
compliance with the standard
ISO14001:1996

The Environmental Management System
applies in the following area:

The manufacture of Mother Board and Peripheral Card and interrelated
management activities of ECS Manufacturing(Shenzhen) Co.,Ltd.
which is located in No.20,Free Trade Zone,Shatuojiao,Shenzhen, P. R.China.

Date of issue: 30th Dec 2001

Date of expiry: 29th Dec 2004

Signed by:



SHENZHEN ENVIRONMENTAL MANAGEMENT SYSTEM CERTIFICATION CENTER

Preface

Copyright

This publication, including all photographs, illustrations and software, is protected under international copyright laws, with all rights reserved. Neither this manual, nor any of the material contained herein, may be reproduced without written consent of the author.

Version 1.0

Disclaimer

The information in this document is subject to change without notice. The manufacturer makes no representations or warranties with respect to the contents hereof and specifically disclaims any implied warranties of merchantability or fitness for any particular purpose. The manufacturer reserves the right to revise this publication and to make changes from time to time in the content hereof without obligation of the manufacturer to notify any person of such revision or changes.

Trademark Recognition

Microsoft, MS-DOS and Windows are registered trademarks of Microsoft Corp.

MMX, Pentium, Pentium-II, Pentium-III, Celeron are registered trademarks of Intel Corporation.

Other product names used in this manual are the properties of their respective owners and are acknowledged.

Federal Communications Commission (FCC)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and the receiver
- Connect the equipment onto an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

Shielded interconnect cables and a shielded AC power cable must be employed with this equipment to ensure compliance with the pertinent RF emission limits governing this device. Changes or modifications not expressly approved by the system's manufacturer could void the user's authority to operate the equipment.

Preface

Declaration of Conformity

This device complies with part 15 of the FCC rules. Operation is subject to the following conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation

Canadian Department of Communications

This class B digital apparatus meets all requirements of the Canadian Interference-causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

About the Manual

The manual consists of the following:

Chapter 1

Introducing the Motherboard

Describes features of the motherboard.

Go to  page 1

Chapter 2

Installing the Motherboard

Describes installation of motherboard components.

Go to  page 7

Chapter 3

Using BIOS

Provides information on using the BIOS Setup Utility.

Go to  page 27

Chapter 4

Using the Motherboard Software

Describes the motherboard software

Go to  page 43

TABLE OF CONTENTS

Preface	i
Chapter 1	1
Introducing the Motherboard	1
Introduction.....	1
Feature.....	2
Motherboard Components.....	4
Chapter 2	7
Installing the Motherboard	7
Safety Precautions.....	7
Choosing a Computer Case.....	7
Installing the Motherboard in a Case.....	7
Checking Jumper Settings.....	8
<i>Setting Jumpers.....</i>	8
<i>Checking Jumper Settings.....</i>	9
<i>Jumper Settings.....</i>	9
Connecting Case Components.....	10
<i>Front Panel Header.....</i>	12
Installing Hardware.....	13
<i>Installing the Processor.....</i>	13
<i>Installing Memory Modules.....</i>	15
<i>Installing a Hard Disk Drive/CD-ROM/SATA Hard Drive.....</i>	17
<i>Installing a Floppy Diskette Drive.....</i>	19
<i>Installing Add-on Cards.....</i>	20
<i>Connecting Optional Devices.....</i>	22
Connecting I/O Devices.....	26
Chapter 3	27
Using BIOS	27
About the Setup Utility.....	27
<i>The Standard Configuration.....</i>	27
<i>Entering the Setup Utility.....</i>	28
<i>Updating the BIOS.....</i>	29
Using BIOS.....	29
<i>Standard CMOS Setup.....</i>	30
<i>Boot Configuration Features.....</i>	31
<i>Advanced Setup.....</i>	32

<i>Advanced Chipset Features</i>	37
<i>Power Management Setup</i>	38
<i>Hardware Health Configuration</i>	40
<i>BIOS Security Features</i>	41
<i>Load Optimal Defaults</i>	42
<i>Load FailSafe Defaults</i>	42
<i>Save Changes and Exit</i>	42
<i>Discard Changes and Exit</i>	42

Chapter 4 **43**

Using the Motherboard Software **43**

About the Software CD-ROM.....	43
Auto-installing under Windows 98/ME/2000/XP.....	43
<i>Running Setup</i>	44
Manual Installation.....	46
Utility Software Reference.....	46

Multi-Language Translation

Chapter 1

Introducing the Motherboard

Introduction

Thank you for choosing the 915-M5 motherboard. This motherboard is a high performance, enhanced function motherboard that supports LGA775 Socket for latest Intel Pentium 4/Celeron processors for high-end business or personal desktop markets.

The motherboard may support 915GV Northbridge (NB) and ICH6 Southbridge (SB) chipsets. The 915GV Northbridge on this motherboard supports a Front Side Bus (FSB) frequency of 800/533 MHz using a scalable FSB Vcc_CPU. The memory controller supports DDR memory DIMM frequencies of 333MHz and 400 MHz. It supports four DDR Sockets with up to maximum memory of 4 GB. DDR Maximum memory bandwidth of 3.2 GB/s in single-channel mode and 6.4 GB/s in dual-channel mode is supported. One optional PCI Express Lite slot is used to install an external PCI Express graphics card.

The ICH6 Southbridge on this motherboard supports three PCI slots which are PCI 2.3 compliant. It implements an EHCI compliant interface that provides 480Mb/s bandwidth for eight USB 2.0 ports, integrates Azalia CODEC that features a 8-channel High Definition audio output. One onboard IDE connector supports 2 IDE devices in ATA-100/66 mode. The Southbridge integrates a Serial ATA host controller that is SATA v1.0 compliant, supporting four SATA ports with maximum transfer rate up to 150 MB/s each.

The 915-M5 motherboard is equipped with advanced full set of I/O ports in the rear panel, including PS/2 mouse and keyboard connectors, COM1, LPT, four USB ports, one VGA port, one optional LAN port, one optional 1394 port, and audio jacks for microphone, line-in, and 8-ch line-out.

Feature Processor

The 915-M5 uses a LGA775 type of Pentium 4 that carries the following features:

- Accommodates Intel P4/Celeron processors
- Supports a system bus (FSB) of 800/533MHz
- Supports “Hyper-Threading” technology CPU

“Hyper-Threading” technology enables the operating system into thinking it’s hooked up to two processors, allowing two threads to be run in parallel, both on separate “logical” processors within the same physical processor.

Chipset

The 915GV Northbridge (NB) and ICH6 Southbridge (SB) chipset are based on an innovative and scalable architecture with proven reliability and performance.

- 915GV (NB)**
- Supports 32-bit host bus addressing, allowing the CPU to access the entire 4 GB of the memory address space.
 - Has a 12-deep In-Order Queue to support up to twelve outstanding pipelined address requests on the host bus.
 - Supports 256-Mb, 512-Mb and 1-Gb DDR/DDR2 technologies for x8 and x16 devices
 - Provides an integrated graphics device delivering cost competitive 3D, 2D and video capabilities.



915GV chipset can only support 256-Mb, 512-Mb and 1-Gb DDR technologies for x8 and x16 device, NOT support 128-Mb DDR technology. That is, 256 MB Double Side Memory Module & 128 MB Single Side Memory Module are NOT support.

- ICH6 (SB)**
- Enhanced DMA Controller, interrupt controller, and timer functions
 - Compliant with PCI 2.3 specification
 - Compliant with Serial ATA 1.0a specification
 - Integrated USB 2.0 Host Controller supporting up to eight USB 2.0 ports
 - Integrated LAN controller
 - Integrated IDE controller supports Ultra ATA100/66/33

Memory

- Accommodates four unbuffered DIMMs
- Up to 1 GB per DIMM with maximum memory size up to 4 GB

Graphics

- Supports core frequency of 333 MHz
- Supports 3D Setup, Render Engine, and 3D Graphics Enhancements
- Supports High Quality Texture Engine
- Video DVD/PC-VCR

Onboard LAN (Optional)

This motherboard may support either of the following LAN chipset:

- | |
|--|
| <ul style="list-style-type: none"> • Supports 10/Mbs and 100Mb/s N-Way Auto negotiation operation • Half/Full duplex capability • Supports Wake-On-LAN(WOL) function and remote wake-up |
| <ul style="list-style-type: none"> • Integrate 10/100/1000 transceiver • Supports PCI v2.3, 32-bit, 33/66MHz • Supports fully with IEEE802.3, IEEE802.3u and IEEE802.3ab |

Introducing the Motherboard

Audio

This motherboard may support either of the following Audio chipset.

- | |
|--|
| <ul style="list-style-type: none"> • Compliant with the AC'97 v2.3 CODEC • Supports 6-channel audio CODEC designed for PC multimedia systems • Provides three analog line-level stereo inputs with 5-bit volume control: Line-in, CD, AUX • Supports S/PDIF output function |
| <ul style="list-style-type: none"> • Compliant with Azalia specification, supporting 8 channel DACs with SNR.100dB • Capabilities: 192/96/48/44.1 KHz with 24/20/16 bits • 8 Smart Jack I/O port support • Extensive jack detection via RNM (resistors network method) that can be used to monitor the plugging status of each jack • Digital S/PDIF OUT & IN support |

Expansion Options

The motherboard comes with the following expansion options:

- One PIC Express Lite slot (optional)
- Three 32-bit PCI v2.3 compliant slots
- One 40-pin IDE low profile header that support two IDE devices
- One floppy disk drive interface and four 7-pin SATA connectors

The 915-M5 motherboard supports UltraDMA bus mastering with transfer rates of 100/66 MB/s.

1394 FireWire (Optional)

- Compliant with the latest IEEE 1394 standards with full 1394a P2000 support
- Detect connected device types and automatically configure data speeds to 100, 200 or 400 Mbps
- Equipped with 32-bit PCI bus interface that features advanced power management, and cardbus support

Integrated I/O

The motherboard has a full set of I/O ports and connectors:

- Two PS/2 ports for mouse and keyboard
- One serial port and one parallel port
- Four USB ports
- One VGA port, one 1394 port (optional) and one LAN port (optional)
- Audio jacks for microphone in, line-in and line-out (Audio jack for microphone in, line-in and 8-ch High Definition Audio out if supports Azalia Audio CODEC.)



Please be noted the I/O may be varied based on what chipset the motherboard supported.

BIOS Firmware

This motherboard uses AWARD BIOS that enables users to configure many system features including the following:

- Power management
- Wake-up alarms
- CPU parameters
- CPU and memory timing

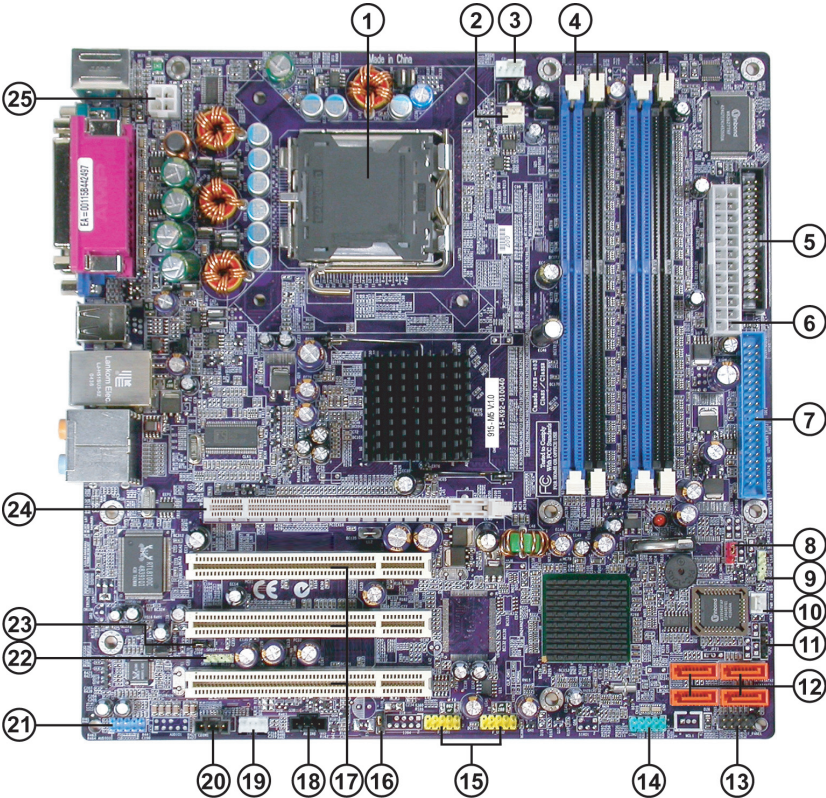
The firmware can also be used to set parameters for different processor clock speeds.



Some hardware specifications and software items are subject to change with out prior notice.

Introducing the Motherboard

Motherboard Components



Introducing the Motherboard

Table of Motherboard Components

LABEL	COMPONENT
1 CPU Socket	LGA775 socket for Pentium 4 CPUs
2 SYS_FAN	System fan connector
3 CPU_FAN	CPU cooling fan connector
4 DIMM1~4	Four 184-pin DDR SDRAM slots
5 FDD	Floppy diskette drive connector
6 ATX1	Standard 24-pin ATX power connector
7 IDE1	Primary IDE channel
8 CLR_CMOS	Clear CMOS jumper
9 SPK1	Speaker header
10 PWR_FAN	Power fan connector
11 IRDA	Infrared header
12 SATA1~4	Four serial ATA connectors
13 F_PANEL	Front Panel switch/LED header
14 COM2	Onboard serial port header
15 F_USB1~F_USB2	Front Panel USB headers
16 BIOS_WP	BIOS flash protect jumper
17 PCI1~3	Three 32-bit add-on card slots
18 AUXIN1*	Auxiliary Audio input connector
19 CDIN2*	Secondary CD-in connector
20 CDIN1	Primary CD-in connector
21 F_AUDIO	Front panel audio header
22 SPDIF-O1	SPDIF out header
23 SPDIF-I1	SPDIF in header
24 PCIE*	PCI Express Lite slot
25 ATX12V	ATX12V power connector

*Stands for optional components

This concludes Chapter 1. The next chapter explains how to install the motherboard.

Memo

Introducing the Motherboard

Chapter 2

Installing the Motherboard

Safety Precautions

- Follow these safety precautions when installing the motherboard
- Wear a grounding strap attached to a grounded device to avoid damage from static electricity
- Discharge static electricity by touching the metal case of a safely grounded object before working on the motherboard
- Leave components in the static-proof bags they came in
- Hold all circuit boards by the edges. Do not bend circuit boards

Choosing a Computer Case

There are many types of computer cases on the market. The motherboard complies with the specifications for the Micro ATX system case. First, some features on the motherboard are implemented by cabling connectors on the motherboard to indicators and switches on the system case. Make sure that your case supports all the features required. Secondly, 915-M5 supports one or two floppy diskette drives and two enhanced IDE drives. Make sure that your case has sufficient power and space for all drives that you intend to install.

Most cases have a choice of I/O templates in the rear panel. Make sure that the I/O template in the case matches the I/O ports installed on the rear edge of the motherboard.

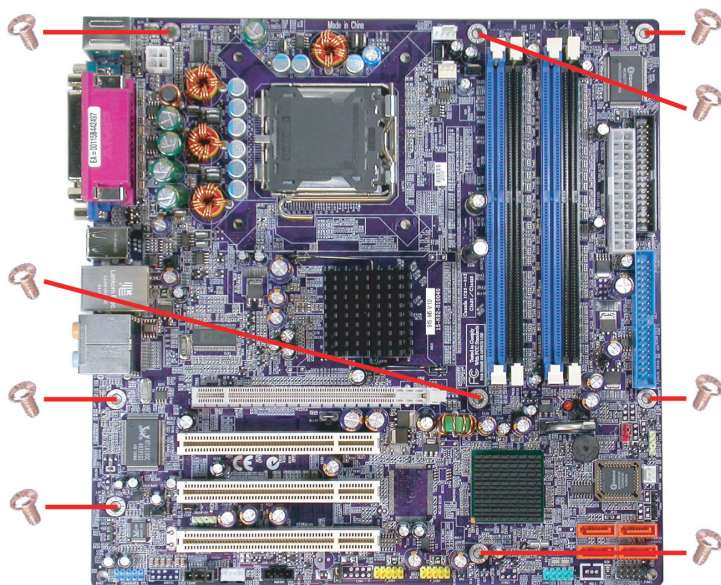
This motherboard carries a Micro ATX form factor of 244 x 244 mm. Choose a case that accommodates this form factor.

Installing the Motherboard in a Case

Refer to the following illustration and instructions for installing the motherboard in a case.

Most system cases have mounting brackets installed in the case, which correspond the holes in the motherboard. Place the motherboard over the mounting brackets and secure the motherboard onto the mounting brackets with screws.

Ensure that your case has an I/O template that supports the I/O ports and expansion slots on your motherboard.



Do not over-tighten the screws as this can stress the motherboard.

Checking Jumper Settings

This section explains how to set jumpers for correct configuration of the motherboard.

Setting Jumpers

Use the motherboard jumpers to set system configuration options. Jumpers with more than one pin are numbered. When setting the jumpers, ensure that the jumper caps are placed on the correct pins.

The illustrations show a 2-pin jumper. When the jumper cap is placed on both pins, the jumper is **SHORT**. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is **OPEN**.

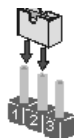


SHORT



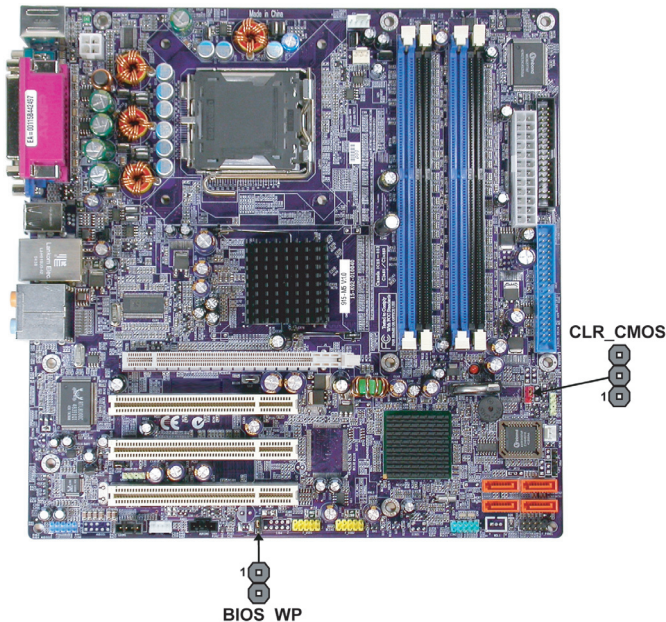
OPEN

This illustration shows a 3-pin jumper. Pins 1 and 2 are **SHORT**



Checking Jumper Settings

The following illustration shows the location of the motherboard jumpers. Pin 1 is labeled.



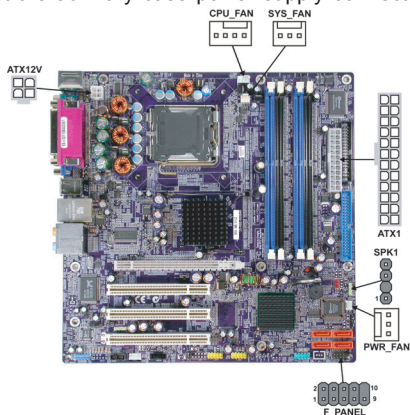
Jumper Settings

Jumper	Type	Description	Setting (default)	
CLR_CMOS	3-pin	Clear CMOS	1-2: CLEAR CMOS 2-3: NORMAL Before clearing the CMOS, make sure to turn off the system.	 1 CLR_CMOS
BIOS_WP	2-pin	BIOS_WP	OPEN: FLASH WRITE UNPROTECTED SHORT: FLASH WRITE PROTECTED	 BIOS_WP

Connecting Case Components

After you have installed the motherboard into a case, you can begin connecting the motherboard components. Refer to the following:

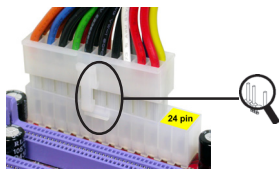
- 1 Connect the CPU cooling fan cable to **CPU_FAN**.
- 2 Connect the case cooling fan connector to **SYS_FAN**.
- 3 Connect the auxiliary power supply cooling fan connector to **PWR_FAN**.
- 3 Connect the case speaker cable to **SPK1**.
- 4 Connect the case switches and indicator LEDs to the **F_PANEL**.
- 6 Connect the standard power supply connector to **ATX1**.
- 7 Connect the auxiliary case power supply connector to **ATX12V**.



Connecting 20/24-pin power cable

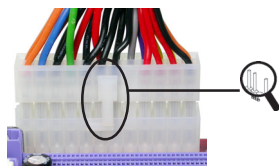


Users please note that the 20-pin and 24-pin power cables can both be connected to the ATX1 connector. With the 20-pin power cable, just align the 20-pin power cable with the pin 1 of the ATX1 connector. However, using 20-pin power cable may cause the system to become unbootable or unstable because of insufficient electricity. A minimum power of 300W is recommended for a fully-configured system



20-pin power cable

Users please note that when installing 20-pin power cable, the latch of power cable falls on the left side of the ATX1 connector latch, just as the picture shows.



24-pin power cable

Users please note that when installing 24-pin power cable, the latches of power cable and the ATX1 match perfectly.

Installing the Motherboard

CPU_FAN: FAN Power Connector

Pin	Signal Name	Function
1	GND	System Ground
2	+12V	Power +12V
3	Sense	Sensor
4	Control	FAN Speed control



Users please note that the fan connector supports the CPU cooling fan of 1.1A~2.2A (26.4W max) at +12V.

PWR_FAN/SYS_FAN: FAN Power Connectors

Pin	Signal Name	Function
1	GND	System Ground
2	+12V	Power +12V
3	Sense	Sensor

SPK1: Internal speaker

Pin	Signal Name
1	VCC
2	Key
3	NO
4	Signal

ATX1: ATX 24-pin Power Connector

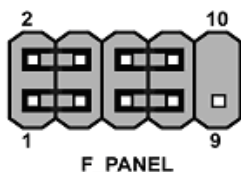
Pin	Signal Name	Pin	Signal Name
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	Ground	15	COM
4	+5V	16	PS_ON
5	Ground	17	COM
6	+5V	18	COM
7	Ground	19	COM
8	PWRGD	20	-5V
9	+5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	COM

ATX12V: ATX 12V Power Connector

Pin	Signal Name
1	+12V
2	+12V
3	Ground
4	Ground

Front Panel Header

The front panel header (F_PANEL) provides a standard set of switch and LED headers commonly found on ATX or Micro-ATX cases. Refer to the table below for information:



Pin	Signal	Function	Pin	Signal	Function
1	HD_LED_P	Hard disk LED+	2	FP PWR/SLP	*MSG LED+
3	HD_LED_N	Hard disk LED-	4	FP PWR/SLP	*MSG LED-
5	RST_SW_N	Reset Switch	6	PWR_SW_P	Power Switch
7	RST_SW_P	Reset Switch	8	PWR_SW_N	Power Switch
9	RSVD	Reserved	10	Key	No pin

* MSG LED (dual color or single color)

Hard Drive Activity LED

Connecting pins 1 and 3 to a front panel mounted LED provides visual indication that data is being read from or written to the hard drive. For the LED to function properly, an IDE drive should be connected to the onboard IDE interface. The LED will also show activity for devices connected to the SCSI (hard drive activity LED) connector.

Power/Sleep/Message waiting LED

Connecting pins 2 and 4 to a single or dual-color, front panel mounted LED provides power on/off, sleep, and message waiting indication.

Reset Switch

Supporting the reset function requires connecting pin 5 and 7 to a momentary-contact switch that is normally open. When the switch is closed, the board resets and runs POST.

Power Switch

Supporting the power on/off function requires connecting pins 6 and 8 to a momentary-contact switch that is normally open. The switch should maintain contact for at least 50 ms to signal the power supply to switch on or off. The time requirement is due to internal debounce circuitry. After receiving a power on/off signal, at least two seconds elapses before the power supply recognizes another on/off signal.

Installing Hardware

Installing the Processor



Caution: When installing a CPU heatsink and cooling fan make sure that you DO NOT scratch the motherboard or any of the surface-mount resistors with the clip of the cooling fan. If the clip of the cooling fan scrapes across the motherboard, you may cause serious damage to the motherboard or its components.

On most motherboards, there are small surface-mount resistors near the processor socket, which may be damaged if the cooling fan is carelessly installed.

Avoid using cooling fans with sharp edges on the fan casing and the clips. Also, install the cooling fan in a well-lit work area so that you can clearly see the motherboard and processor socket.

Before installing the Processor

This motherboard automatically determines the CPU clock frequency and system bus frequency for the processor. You may be able to change these settings by making changes to jumpers on the motherboard, or changing the settings in the system Setup Utility. We strongly recommend that you do not over-clock processors or other components to run faster than their rated speed.



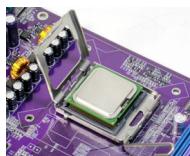
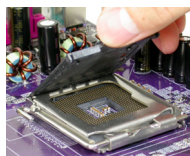
Warning: Over-clocking components can adversely affect the reliability of the system and introduce errors into your system. Over-clocking can permanently damage the motherboard by generating excess heat in components that are run beyond the rated limits.

This motherboard has a LGA775 socket. When choosing a processor, consider the performance requirements of the system. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the quantity of internal cache memory and external cache memory.

CPU Installation Procedure

The following illustration shows CPU installation components.

- A. Unload the cap
 - Use thumb & forefinger to hold the lifting tab of the cap.
 - Lift the cap up and remove the cap completely from the socket.
- B. Open the load plate
 - Use thumb & forefinger to hold the hook of the lever, pushing down and pulling aside unlock it.
 - Lift up the lever.
 - Use thumb to open the load plate. Be careful not to touch the contacts.
- C. Install the CPU on the socket
 - Orientate CPU package to the socket. Make sure you match triangle marker to pin 1 location.
- D. Close the load plate
 - Slightly push down the load plate onto the tongue side, and hook the lever.
 - CPU is locked completely.
- E. Apply thermal grease on top of the CPU.
- F. Fasten the cooling fan supporting base onto the CPU socket on the motherboard.
- G. Make sure the CPU fan is plugged to the CPU fan connector. Please refer to the CPU cooling fan user's manual for more detail installation procedure.



To achieve better airflow rates and heat dissipation, we suggest that you use a high quality fan with 3800 rpm at least. CPU fan and heatsink installation procedures may vary with the type of CPU fan/heatsink supplied. The form and size of fan/heatsink may also vary.

Installing Memory Modules

This motherboard accommodates four 184-pin 2.5V unbuffered DIMM and supports DDR333/400. You must install at least one module in any of the four slots. Each module can be installed with 256MB to 1GB of memory; the total memory capacity is 4GB.

DDR SDRAM memory module table

Memory module	Memory Bus
<i>DDR 333</i>	<i>166MHz</i>
<i>DDR 400</i>	<i>200MHz</i>



Do not remove any memory module from its antistatic packaging until you are ready to install it on the motherboard. Handle the modules only by their edges. Do not touch the components or metal parts. Always wear a grounding strap when you handle the modules.

Installation Procedure

Refer to the following to install the memory modules.

- 1 This motherboard supports unbuffered DDR and DDR2 SDRAM .
- 2 Push the latches on each side of the DIMM slot down.
- 3 Align the memory module with the slot. The DIMM slots are keyed with notches and the DIMMs are keyed with cutouts so that they can only be installed correctly.
- 4 Check that the cutouts on the DIMM module edge connector match the notches in the DIMM slot.
- 5 Install the DIMM module into the slot and press it firmly down until it seats correctly. The slot latches are levered upwards and latch on to the edges of the DIMM.
- 6 Install any remaining DIMM modules.

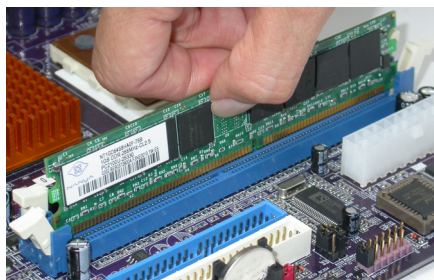


Table A: DDR (memory module) QVL (Qualified Vendor List)

The following DDR400 memory modules have been tested and qualified for use with this motherboard.

Size	Vendor	Model Name
256MB	GEIL	GE08L3264D1WL5NKT3H71
	Samsung	K4H560838D-TCCC
	Kingston	D3208DL2T-5 0323PT01
	HYNIX	HY5DU5656822BT-D43
	Apacer	AM3A568ACT-5A
	Samsung	K4H560838E-TCCC
	CORSAIR	CMX256 3200C2PT
	Kingston	K4H560838D-TCC4
	GEIL	G216L6464D2TG5NKT2L
	GEIL	GE08L3264D1WL5NKT3H71
	Samsung	K4H560838D-TCCC
	Kingston	D3208DL2T-5 0323PT01
	HYNIX	HY5DU5656822BT-D43
	Apacer	AM3A568ACT-5A
	GEIL	G208L364D1TG5NKT3C
	Ramaxel	MT-46V32M8 TG-5BC
	Samsung	K4H560838E-TCCC
	CORSAIR	CMX256 3200C2PT
	Kingston	K4H560838D-TCC4
	GEIL	G216L6464D2TG5NKT2L
512 MB	Kingston	SAMSUNG K4H560838D-TCC4
	Samsung	K4H560838E-TCCC
	GEIL	GE16L6464D2 WL5NKT3H66
	Kingston	SAMSUNG K4H560838D-TCC4
	Samsung	K4H560838E-TCCC
	GEIL	GE16L6464D2 WL5NKT3H66

Installing a Hard Disk Drive/CD-ROM/SATA Hard Drive

This section describes how to install IDE devices such as a hard disk drive and a CD-ROM drive.

About IDE Devices

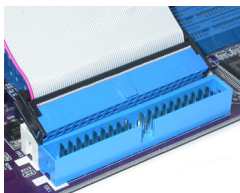
Your motherboard has one IDE channel interface. An IDE ribbon cable supporting two IDE devices is bundled with the motherboard.



You must orient the cable connector so that the pin1 (color) edge of the cable corresponds to the pin 1 of the I/O port connector.

IDE1: IDE Connector

This motherboard supports four high data transfer SATA ports with each runs up to 150 MB/s. To get better system performance, we recommend users connect the CD-ROM to the IDE channel, and set up the hard drives on the SATA ports.



IDE devices enclose jumpers or switches used to set the IDE device as MASTER or SLAVE. Refer to the IDE device user's manual. Installing two IDE devices on one cable, ensure that one device is set to MASTER and the other device is set to SLAVE. The documentation of your IDE device explains how to do this.

About SATA Connectors

Your motherboard features four SATA connectors supporting a total of four drives. SATA , or Serial ATA (Advanced Technology Attachment) is the standard interface for the IDE hard drives which are currently used in most PCs. These connectors are well designed and will only fit in one orientation. Locate the SATA connectors on the motherboard and follow the illustration below to install the SATA hard drives.

Installing Serial ATA Hard Drives

To install the Serial ATA (SATA) hard drives, use the SATA cable that supports the Serial ATA protocol. This SATA cable comes with an SATA power cable. You can connect either end of the SATA cable to the SATA hard drive or the connector on the motherboard.



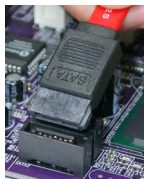
SATA cable (optional)



SATA power cable (optional)

Refer to the illustration below for proper installation:

- 1 Attach either cable end to the connector on the motherboard.
- 2 Attach the other cable end to the SATA hard drive.
- 3 Attach the SATA power cable to the SATA hard drive and connect the other end to the power supply.



This motherboard does not support the “Hot-Plug” function.

Installing a Floppy Diskette Drive

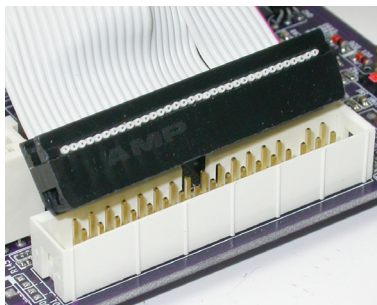
The motherboard has a floppy diskette drive (FDD) interface and ships with a diskette drive ribbon cable that supports one or two floppy diskette drives. You can install a 5.25-inch drive and a 3.5-inch drive with various capacities. The floppy diskette drive cable has one type of connector for a 5.25-inch drive and another type of connector for a 3.5-inch drive.



You must orient the cable connector so that the pin 1 (color) edge of the cable corresponds to the pin 1 of the I/O port connector.

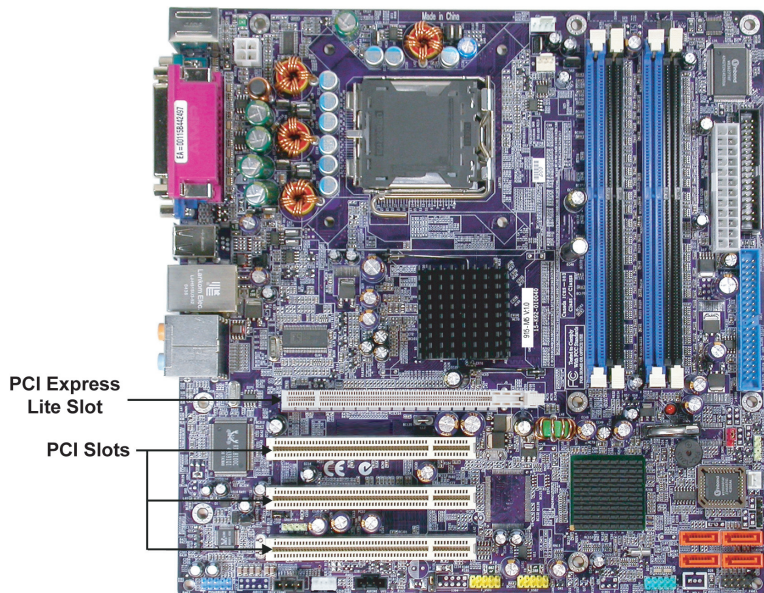
FDD: Floppy Disk Connector

This connector supports the provided floppy drive ribbon cable. After connecting the single end to the onboard floppy connector, connect the remaining plugs on the other end to the floppy drives correspondingly.



Installing Add-on Cards

The slots on this motherboard are designed to hold expansion cards and connect them to the system bus. Expansion slots are a means of adding or enhancing the motherboard's features and capabilities. With these efficient facilities, you can increase the motherboard's capabilities by adding hardware that performs tasks that are not part of the basic system.



PCI Express Lite Slot The PCI Express Lite slot is used to install an external PCI Express graphics card.

PCI Slot PCI slots are used to install expansion cards that have the 32-bit PCI interface.



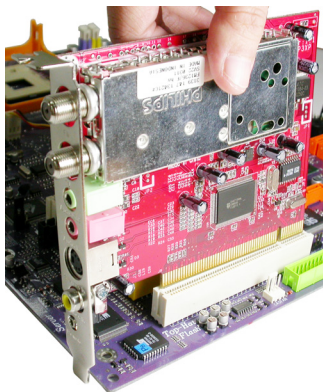
Before installing an add-on card, check the documentation for the card carefully. If the card is not Plug and Play, you may have to manually configure the card before installation.

Table A: Supported PCI Express Lite Cards List

VGA Chip	Model name
nVIDIA	MSI NX6600-TD128SE 128MB (16X)
	ELSA GLADIAC 660 128T 128MB (16x)
	NVIDIA PCX5300 128MB (16X)
	NVIDIA PCX5750 128MB (16X)
	WinFast PX360TD 128MB (16X)
	ELSA PCX5900 128MB (16X)
ATI	RX300SE-128TD V:1.D 128MB (16X)
	MSI X600 128MB (16X)
	ELSA X600 128MB (16X)

Follow these instructions to install an add-on card:

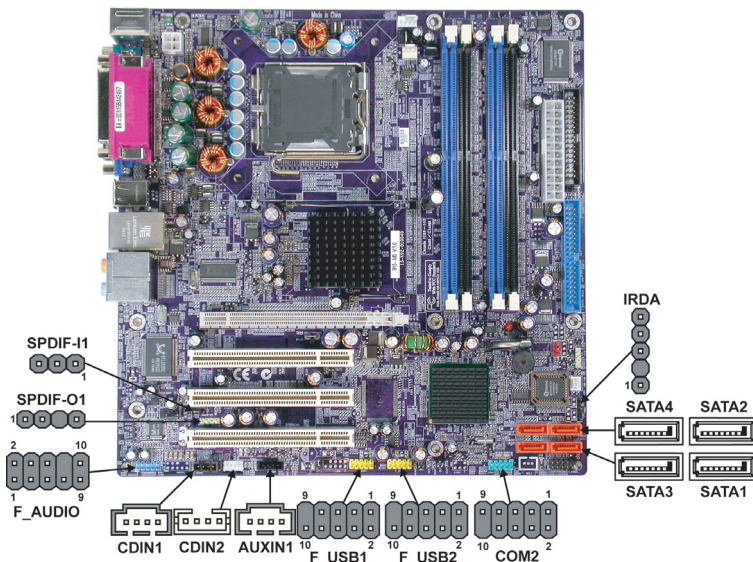
- 1 Remove a blanking plate from the system case corresponding to the slot you are going to use.
- 2 Install the edge connector of the add-on card into the expansion slot. Ensure that the edge connector is correctly seated in the slot.
- 3 Secure the metal bracket of the card to the system case with a screw.



For some add-on cards, for example graphics adapters and network adapters, you have to install drivers and software before you can begin using the add-on card.

Connecting Optional Devices

Refer to the following for information on connecting the motherboard's optional devices:



Installing the Motherboard

F_USB1/F_USB2: Front Panel USB headers

The motherboard has four USB ports installed on the rear edge I/O port array. Additionally, some computer cases have USB ports at the front of the case. If you have this kind of case, use auxiliary USB connector to connect the front-mounted ports to the motherboard.

Pin	Signal Name	Function
1	USBPWR	Front Panel USB Power
2	USBPWR	Front Panel USB Power
3	USB_FP_P0-	USB Port 0 Negative Signal
4	USB_FP_P1-	USB Port 1 Negative Signal
5	USB_FP_P0+	USB Port 0 Positive Signal
6	USB_FP_P1+	USB Port 1 Positive Signal
7	GND	Ground
8	GND	Ground
9	Key	No pin
10	USB_FP_OC0	Overcurrent signal



Please make sure that the USB cable has the same pin assignment as indicated above. A different pin assignment may cause damage or system hand-up.

AUXIN1: Auxiliary-in connector (optional)

This connector is an additional line-in audio connector. It allows you to attach a line-in cable when your rear line-in jack is set as line out port for 4-channel function.

Pin	Signal Name	Function
1	AUXIN_L	AUX In left channel
2	AGND	Ground
3	AGND	Ground
4	AUXIN_R	AUX In right channel

CDIN1: Primary CD-in connector

Pin	Signal Name
1	CD_L
2	GND
3	GND
4	CD_R

CDIN2: Secondary CD-in connector (optional)

Pin	Signal Name
1	CD-GND
2	CD-R
3	CD-GND
4	CD-L

F_AUDIO: Front Panel Audio header

This header allows the user to install auxiliary front-oriented microphone and line-out ports for easier access.

Pin	Signal Name	Function
1	AUD_MIC	Front Panel Microphone input signal
2	AUD_GND	Ground used by Analog Audio Circuits
3	AUD_MIC_BIAS	Microphone Power
4	AUD_VCC	Filtered +5V used by Analog Audio Circuits
5	AUD_FPOUT_R	Right Channel audio signal to Front Panel
6	AUD_RET_R	Right Channel Audio signal to Return from Front Panel
7	HP_ON	Reserved for future use to control Headphone Amplifier
8	Key	No Pin
9	AUD_F_L	Left Channel Audio signal to Front Panel
10	AUD_RET_L	Left Channel Audio signal to Return from Front Panel

AUDIO1: Front Panel Audio header for Azalia

This header allows the user to install auxiliary front-oriented microphone and line-out ports for easier access.

Pin	Signal Name
1	PORT-FL
2	GND
3	PORT-FR
4	ACZ-DET
5	PORT-ER
6	AGND
7	SENSE B
8	Key
9	PORT-EL
10	GND



If your front panel cable is seperated, please connect it to pin1 and pin3 or pin5 and pin7 to activate the MIC function.

IRDA: Infrared header

The motherboard supports an Infrared (IRDA) data port. Infrared ports allow the wireless exchange of information between your computer and similarly equipped devices such as printers, laptops, Personal Digital Assistants (PDAs), and other computers.

Pin	Signal Name
1	RSVD
2	No Pin
3	IR Power, +5V
4	Ground
5	IR_Tx
6	IR_Rx

SATA1/2/3/4: Serial ATA connectors

These connectors are used to support the new Serial ATA devices for the highest data transfer rates (150 MB/s), simpler disk drive cabling and easier PC assembly. It eliminates limitations of the current Parallel ATA interface. But maintains register compatibility and software compatibility with Parallel ATA.

Pin	Signal Name	Pin	Signal Name
1	Ground	2	TX+
3	TX-	4	Ground
5	RX-	6	RX+
7	Ground	-	-

SPDIF-I1: SPDIF in header

This is an optional header that provides an S/PDIF (Sony/Philips Digital Interface) input to digital multimedia device through optical fiber or coaxial connector.

Pin	Signal Name	Function
1	VCC3	Power
2	GND	Ground
3	SPDIF	SPDIF digital input

SPDIF-O1: SPDIF out header

This is an optional header that provides an S/PDIF (Sony/Philips Digital Interface) output to digital multimedia device through optical fiber or coaxial connector.

Pin	Signal Name	Function
1	SPDIF	SPDIF digital output
2	+5VA	5V analog power
3	Key	No pin
4	GND	Ground

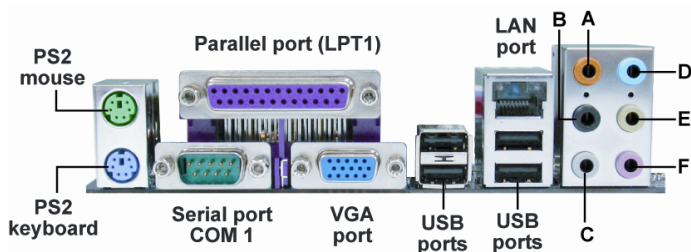
COM2: Onboard serial port header

Connect a serial port extension bracket to this header to add a second serial port to your system.

Pin	Signal Name	Function
1	NDCDB	Data carry detect
2	NSINB	Serial Data In
3	NSOUTB	Serial Data Out
4	NDTRB	Data terminal ready
5	GND	Ground
6	NDSRB	Data set ready
7	NRTSB	Request to send
8	NCTSB	Clear to send
9	NRIB	Ring Indicator
10	Key	No pin

Connecting I/O Devices

The backplane of the motherboard has the following I/O ports:



- PS2 Mouse** Use the upper PS/2 port to connect a PS/2 pointing device.
- PS2 Keyboard** Use the lower PS/2 port to connect a PS/2 keyboard.
- Parallel Port (LPT1)** Use LPT1 to connect printers or other parallel communications devices.
- Serial Port (COM1)** Use the COM port to connect serial devices such as mice or fax/modems. COM1 is identified by the system as COM1/3.
- VGA Port** Connect your monitor to the VGA port.
- LAN Port (optional)** Connect an RJ-45 jack to the LAN port to connect your computer to the Network.
- USB Ports** Use the USB ports to connect USB devices.
- Audio Ports** Use the audio jacks to connect audio devices. The D port is for stereo line-in signal, while the F port is for microphone in signal. This motherboard supports 8-channel audio devices that correspond to the A, B, C, and E port respectively. In addition, all of the 3 ports, B, C, and E provide users with both right & left channels individually. Users please refer to the following note for specific port function definition.



A: Center & Woofer	D: Line-in
B: Back Surround	E: Front Out
C: Side Surround	F: Mic_in Rear

The above port definition can be changed to audio input or audio output by changing the driver utility setting.

This concludes Chapter 2. The next chapter covers the BIOS.

Chapter 3

Using BIOS

About the Setup Utility

The computer uses the latest American Megatrends BIOS with support for Windows Plug and Play. The CMOS chip on the motherboard contains the ROM setup instructions for configuring the motherboard BIOS.

The BIOS (Basic Input and Output System) Setup Utility displays the system's configuration status and provides you with options to set system parameters. The parameters are stored in battery-backed-up CMOS RAM that saves this information when the power is turned off. When the system is turned back on, the system is configured with the values you stored in CMOS.

The BIOS Setup Utility enables you to configure:

- Hard drives, diskette drives and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power Management features

The settings made in the Setup Utility affect how the computer performs. Before using the Setup Utility, ensure that you understand the Setup Utility options.

This chapter provides explanations for Setup Utility options.

The Standard Configuration

A standard configuration has already been set in the Setup Utility. However, we recommend that you read this chapter in case you need to make any changes in the future.

This Setup Utility should be used:

- when changing the system configuration
- when a configuration error is detected and you are prompted to make changes to the Setup Utility
- when trying to resolve IRQ conflicts
- when making changes to the Power Management configuration
- when changing the password or making other changes to the Security Setup

Entering the Setup Utility

When you power on the system, BIOS enters the Power-On Self Test (POST) routines. POST is a series of built-in diagnostics performed by the BIOS. After the POST routines are completed, the following message appears:

Press DEL to enter SETUP

Press the delete key to access the BIOS Setup Utility:

CMOS Setup Utility -- Copyright (C) 1985-2004, American Megatrends, Inc.

▶ Standard CMOS Setup ▶ Boot Configuration Features ▶ Advanced Setup ▶ Advanced Chipset Features ▶ Power Management Features ▶ Hardware Health Configuration	▶ BIOS Security Features - Load Optimal Defaults - Load Failsafe Defaults - Save Changes and Exit - Discard Changes and Exit
↑↓ → ← : Move Enter : Select +/-: Value F10: Save ESC: Exit F1: General Help F7: Previous Values F8: Fail-Safe Defaults F9: Optimized Defaults	
Standard CMOS setup for changing time, date, hard disk type, etc. v02.56 (C)Copyright 1985-2004, American Megatrends, Inc.	

BIOS Navigation Keys

The BIOS navigation keys are listed below:

KEY	FUNCTION
ESC	Exits the current menu
←↑↓→	Scrolls through the items on a menu
+/-	Modifies the selected field's values
F1	Displays a screen that describes all key functions
F7	Loads Previous Values
F8	Loads Failsafe Defaults
F9	Loads an optimized setting for better performance
F10	Saves the current configuration and exits setup
ESC	Exits the current menu

Updating the BIOS

You can download and install updated BIOS for this motherboard from the manufacturer's Web site. New BIOS provides support for new peripherals, improvements in performance, or fixes for known bugs. Install new BIOS as follows:

- 1 If your motherboard has a BIOS protection jumper, change the setting to allow BIOS flashing.
- 2 If your motherboard has an item called Firmware Write Protect in Advanced BIOS features, disable it. (Firmware Write Protect prevents BIOS from being overwritten.)
- 3 Create a bootable system disk. (Refer to Windows online help for information on creating a bootable system disk.)
- 4 Download the Flash Utility and new BIOS file from the manufacturer's Web site. Copy these files to the system diskette you created in Step 3.
- 5 Turn off your computer and insert the system diskette in your computer's diskette drive. (You might need to run the Setup Utility and change the boot priority items on the Boot Configuration Features, to force your computer to boot from the floppy diskette drive first.)
- 6 At the A:\ prompt, type the Flash Utility program name and the file name of the new BIOS, then press <Enter>
- 7 When the installation is complete, remove the floppy diskette from the diskette drive and restart your computer. If your motherboard has a Flash BIOS jumper, reset the jumper to protect the newly installed BIOS from being overwritten.

Using BIOS

When you start the Setup Utility, the main menu appears. The main menu of the Setup Utility displays a list of the options that are available. A highlight indicates which option is currently selected. Use the cursor arrow keys to move the highlight to other options. When an option is highlighted, execute the option by pressing <Enter>.

Some options lead to pop-up dialog boxes that prompt you to verify that you wish to execute that option. Other options lead to dialog boxes that prompt you for information.

Some options (marked with a triangle ►) lead to submenus that enable you to change the values for the option. Use the cursor arrow keys to scroll through the items in the submenu.

In this manual, default values are enclosed in parenthesis. Submenu items are denoted by a triangle ►.

Standard CMOS Setup

This option displays basic information about your system.

CMOS Setup Utility - Copyright (C) 1985-2004, American Megatrends, Inc.
Standard CMOS Setup

System Overview	Help Item
AMIBIOS Version : 08.00.11 Build Date : 10/22/04 ID : 915-IM5	Use [ENTER], [TAB] or [SHIFT-TAB] TO select a field.
Processor Type : Genuine Intel (R) CPU 3.20GHz Speed : 3200MHz Count : 1	Use [+] or [-] to configure system Time.
System Memory Size : 512MB	
System Time [00:04:43] System Date [Tue 06/08/2004]	

↑↓ → ← : Move Enter : Select +/- : Value F10: Save ESC: Exit F1: General help
 F7: Previous Values F8: Fail-Safe Defaults F9: Optimized Defaults

Processor

The item is automatically detected by the system at start up time. The Processor item shows the processor type and speed installed in your computer. This is display-only field. You cannot make changes to this field.

System Memory

The item is automatically detected by the system at start up time. The is display-only field. You cannot make changes to this field.

Time and Date

The Date and Time items show the current date and time on the computer. If you are running a Windows OS, these items are automatically updated whenever you make changes to the Windows Date and Time Properties utility.

Press <Esc> to return to the main menu setting page.

Boot Configuration Features

This option displays basic information about your system.

CMOS Setup Utility - Copyright (C) 1985-2004, American Megatrends, Inc.
Boot Configuration Features

Boot Settings Configuration		Help Item
1st Boot Device	[1st FLOPPY DRIVE]	Specifies the boot sequence from the available devices.
2nd Boot Device	[IC35L04AVVN07-0]	
3rd Boot Device	[ASUS CD-S520/A]	
Quick Boot	[Enabled]	A device enclosed in parenthesis has been disabled in the corresponding type menu.
Quiet Boot	[Enabled]	
Bootup Num-Lock	[On]	

↑↓ → ← : Move Enter: Select +/-: Value F10: Save ESC: Exit F1: General help
F7: Previous Values F8: Fail-Safe Defaults F9: Optimized Defaults

1st/2nd/3rd Boot Device

Use these three items to select the priority and order of the devices that your system searches for an operating system at start-up time.

Quick Boot (Enabled)

If you enable this item, the system starts up more quickly by elimination of some of the power on test routines.

Quiet Boot (Enabled)

If enabled, BIOS will show a full screen logo at boot; if disabled, BIOS will set the initial display mode to BIOS and show the diagnostic POST screen at boot.

Boot Up NumLock (On)

This item defines if the keyboard Num Lock key is active when your system is started.

Press <Esc> to return to the main menu setting page.

Advanced Setup

This page sets up more advanced information about your system. Handle this page with caution. Any changes can affect the operation of your computer.

CMOS Setup Utility - Copyright (C) 1985-2004, American Megatrends, Inc.
Advanced Setup

Advanced Settings		Help Item
▶ CPU Configuration	[Press Enter]	Configure CPU
▶ Floppy Configuration	[Press Enter]	
▶ IDE Configuration	[Press Enter]	
▶ SuperIO Configuration	[Press Enter]	

↑↓ → ← : Move Enter: Select +/-: Value F10: Save ESC: Exit F1: General help
F7: Previous Values F8: Fail-Safe Defaults F9: Optimized Defaults

▶CPU Configuration (Press Enter)

Scroll to this item and press <Enter> to view the following screen:

CMOS Setup Utility - Copyright (C) 1985-2004, American Megatrends, Inc.
CPU Configuration

Advanced Settings		Help Item
Manufacturer	Intel	Sets the ratio between CPU Core Clock and the FSB Frequency. NOTE: If a invalid ratio has been entered to this field, BIOS will restore it to previous state.
Brand String	: Genuine Intel(R) CPU 3.20GHz	
Frequency	: 3.20GHz	
FSB Speed	: 800MHz	
Cache L1	: 800KB	
Cache L2	: 512KB	
Cache L3	: 2048KB	
Cache L3	: 2048KB	
Ratio Status	Unlocked (Max: 17,	
Ratio Actual Value	17	
Ratio CMOS Setting	[14]	
Hyper Threading Technology	[Enabled]	
Max CPUID Value Limit	[Disabled]	
Execute Disable Bit	[Disabled]	
CPU Over-clocking Func.	[Disabled]	
CPU Frequency	200MHz	

↑↓ → ← : Move Enter: Select +/-: Value F10: Save ESC: Exit F1: General help
F7: Previous Values F8: Fail-Safe Defaults F9: Optimized Defaults

Manufacturer/Brand String/Frequency/FSB Speed

These are display-only fields and display the information of current manufacturer, brand of the CPU, frequency and Front Side Bus of the CPU installed in your computer.

Cache L1/L2/L3

These items show the actual CPU internal level 1/2/3 cache size.

Using BIOS

Ratio Status/Ratio Actual Value

These items show the Locked ratio status and the actual ratio of the CPU installed in your system.

Ratio CMOS Setting (14)

This item sets the ratio between CPU Core Clock and the FSB Frequency. Users please not that if a invalid ratio has been entered to this field, BIOS will restore it to previous state.

Hyper Threading Technology (Enabled)

This item is only available when the chipset supports Hyper-Threading and you are using a Hyper-Threading CPU.

Max CPUID Value Limit (Disabled)

This item enables or disables the Max CPU ID value limit. When supports Prescott and LGA775 CPUs, enables this item to prevent the system from “rebooting” when trying to install Windows NT4.0

Execute Disable Bit (Disabled)

This item is a security feature that helps you protect your CPU and operating system against malicious software executing code. This item is available when CPU supports the feature.

CPU Over-clocking Func. (Disabled)

This item decides the CPU over-clocking function/frequency installed in your system. If the over-clocking fails, please turn off the system power. And then, hold the Insert key (similar to the Clear CMOS function) and turn on the power, the BIOS will recover the safe default.

CPU Frequency

This item displays the CPU current frequency.

Press <Esc> to return to the advanced setup page.

►Floppy Configuration (Press Enter)

Scroll to this item and press <Enter> to view the following screen:

CMOS Setup Utility - Copyright (C) 1985-2004, American Megatrends, Inc.
Floppy Configuration

Floppy Configuration		Help Item
Floppy A	[1.44MB 3½"]	Select the type of floppy drive connected to the system.
Floppy B	[Disabled]	

↑↓ → ← : Move Enter: Select +/-: Value F10: Save ESC: Exit F1: General help
F7: Previous Values F8: Fail-Safe Defaults F9: Optimized Defaults

Floppy A/B

Use these items to set up size and capacity of the floppy diskette drive(s) installed in the system.

Press <Esc> to return to the advanced setup page.

►IDE Configuration (Press Enter)

Scroll to this item and press <Enter> to view the following screen:

CMOS Setup Utility - Copyright (C) 1985-2004, American Megatrends, Inc.
IDE Configuration

IDE Configuration		Help Item
ATA/IDE Configuration	[Compatible]	Options
Legacy IDE Channels	[SATA Pri, PATA Sec]	
► Primary IDE Master	[Not Detected]	
► Primary IDE Slave	[Not Detected]	
► Secondary IDE Master	[Hard Disk]	
► Secondary IDE Slave	[CD/DVD ROM]	
Hard Disk Write Protect	[Disabled]	
IDE Detect Time Out (Sec)	[35]	

↑↓ → ← : Move Enter : Select +/-: Value F10: Save ESC: Exit F1: General help
F7: Previous Values F8: Fail-Safe Defaults F9: Optimized Defaults

ATA/IDE Configuration (Compatible)

The ATA/IDE option can be configured as “Disabled”, “Compatible (default)” and “Enhanced” in the BIOS configuration. Windows* 98SE and Windows* Me operating systems do not support Enhanced mode IDE/Serial ATA resources for more than four devices. If the ATA/IDE option is set to Enhanced mode, the operating installation will not be able to recognize the drive, and the installation will fail. Before installing 98SE or Me, the ATA/IDE configuration must be changed from Enhanced to Legacy mode.

IDE Channels (SATA Pri. PATA Sec)

Use this item to set up the primary and secondary sequence of IDE channels and SATA channel. If set ATA/IDE Configuration to Compatible mode and IDE channels to SATA Pri/ PATA Sec, users can only plug in SATA devices on SATA1 and SATA2; if set ATA/IDE Configuration to Compatible mode and IDE channels as SATA Sec/PATA Pri, users can only plug in SATA devices on SATA3 and SATA4 or else SATA devices will not be recognized. If set ATA/IDE Configuration to Enhanced mode, then SATA devices can be plugged into any SATA connector.

Primary/Secondary IDE Master/Slave(Not detected/Hard Disk/CD/DVD ROM)

Your computer has two IDE channels and each channel can be installed with one or two devices (Master and Slave). In addition, this motherboard supports four SATA channels and each channel allows one SATA device to be installed. Use these items to configure each device on the IDE channel.

If any IDE device is detected in any one of the above items, press <Enter> to reveal the following information.

CMOS Setup Utility - Copyright (C) 1985-2004, American Megatrends, Inc.
Secondary IDE Master

Secondary IDE Master	Help Item
Device : Hard Disk Vendor : IC35L040AUVN07-0 Size : 41.1GB LBA Mode : Supported Block Mode : 16 Sectors PIO Mode : 4 Async DMA : MultiWord DMA-2 Ultra DMA : Ultra DMA-2 S.M.A.R.T. : Supported	Select the type of device conneted to the system.
Type [Auto] LBA/Large Mode [Auto] Block (Multi-Sector Transfer) [Auto] PIO Mode [Auto] DMA Mode [Auto] S.M.A.R.T. [Auto]	

↑↓ → ← :Move Enter: Select +/-: Value F10: Save ESC: Exit F1: General help
F7: Previous Values F8: Fail-Safe Defaults F9: Optimized Defaults

CMOS Setup Utility - Copyright (C) 1985-2004, American Megatrends, Inc.
Secondary IDE Slave

Secondary IDE Slave	Help Item
Device : CD/DVD ROM Vendor : ASUS CD-S520/A LBA Mode : Supported PIO Mode : 4 Async DMA : MultiWord DMA-2 Ultra DMA : Ultra DMA-2	Select the type of device conneted to the system.
Type [Auto] PIO Mode [Auto] DMA Mode [Auto]	

↑↓ → ← :Move Enter: Select +/-: Value F10: Save ESC: Exit F1: General help
F7: Previous Values F8: Fail-Safe Defaults F9: Optimized Defaults

Hard Disk Write Protect (Disabled)

Use this item to enable or disable hard disk write protection.

IDE Detect Time Out (35)

This item allows you to set time out for IDE detection.

Press <Esc> to return to the advanced setup page.

►Super IO Configuration (Press Enter)

Scroll to this item and press <Enter> to view the following screen:

CMOS Setup Utility - Copyright (C) 1985-2004, American Megatrends, Inc.
SuperIO Configuration

OnBoard Floppy Controller	[Enabled]	Help Item
Serial Port1 Address	[3FB/IRQ4]	Allows BIOS to Enable or Disable Floppy Controller.
Serial Port 2 Address	[2FB/IRQ3]	
Serial Port 2 Mode	[Normal]	
Parallel Port Address	[378]	
Parallel Port Mode	[ECP]	
ECP mode DMA channel	[DMA3]	
Parallel Port IRQ	[IRQ7]	

↑↓ → ← : Move Enter : Select +/- : Value F10: Save ESC: Exit F1: General help
F7: Previous Values F8: Fail-Safe Defaults F9: Optimized Defaults

Onboard Floppy Controller (Enabled)

Use this item to enable or disable the onboard floppy disk drive interface.

Serial Port1/2 Address (3F8/IRQ4/2FB/IRQ3)

Use this item to enable or disable the onboard COM1/2 serial port, and to assign a port address.

Serial Port2 Mode (Normal)

If Serial Port2 Address is not disabled, it allows you to set the Serial Port 2 Mode.

Parallel Port Address (378)

Use this item to enable or disable the onboard Parallel port, and to assign a port address.

Parallel Port Mode(ECP)

Use this item to select the parallel port mode.

ECP Mode DMA channel (DMA3)

This item assigns a DMA channel to the parallel port. The options are 0,1, and 3.

Parallel Port IRQ (IRQ7)

Use this item to assign IRQ to the parallel port.

Press <Esc> to return to the advanced setup page.

Advanced Chipset Features

This page sets up more advanced chipset information about your system. Handle this page with caution. Any changes can affect the operation of your computer.

CMOS Setup Utility - Copyright (C) 1985-2004, American Megatrends, Inc.

Advanced Chipset Features

Advanced Chipset Settings		Help Item
DRAM Frequency	[Auto]	Select the type of device conncted to the system.
Configure DRAM Timing by SPD	[Enabled]	
Init Display First	[PCIEX/PCI]	
Onboard Video Memory Size	[8MB 0MB 120MB 128MB]	
Aperture Size Select	[256MB]	
Auto Detect PCI Clk	[Enabled]	
Spread Spectrum	[Enabled]	
Onboard Device		
USB Function	[Enabled]	
Legacy USB Support	[Enabled]	
USB 2.0 Controller	[Enabled]	
AUDIO Device	[Enabled]	
LAN Device	[Enabled]	
LAN Boot ROM Support	[Disabled]	

↑ ↓ → ← : Move Enter : Select +/- : Value F10: Save ESC: Exit F1: General help
F7: Previous Values F8: Fail-Safe Defaults F9: Optimized Defaults

DRAM Frequency (Auto)

This item determines frequency of DRAM memory.

Configure DRAM Timing by SPD (Enabled)

When this item is set to enable, the DDR timing is configured using SPD. SPD (Serial Presence Detect) is located on the memory modules, BIOS reads information coded in SPD during system boot up.

Init Display First (PCIEX/PCI)

This item allows you to choose the primary display card.

Onboard Video Memory Size (8MB 0MB 120MB 128MB)

This item shows the Video memory size borrowed from main memory capacity.

Aperture Size Select (256MB)

This item defines the size of the aperture if you use an AGP graphics adapter. The AGP aperture refers to a section of the PCI memory address range used for graphics memory. We recommend that you leave this item at the default value.

Auto Detect PCI Clk (Enabled)

This item allows you to enable or disable you to detect PCI clock automatically.

Spread Spectrum (Enabled)

If you enable spread spectrum, it can significantly reduce the EMI (Electro-Magnetic Interference) generated by the system.

USB Function (Enabled)

This item allows you to enable or disable USB function.

Legacy USB Support (Enabled)

This item allows you to enable or disable Legacy USB support.

USB 2.0 Controller (Enabled)

This item allows you to enable or disable USB 2.0 Controller.

AUDIO Device (Enabled)

Enables and disables the Audio device.

LAN Device (Enabled)

Enables and disables the onboard LAN.

LAN Boot ROM Support (Disabled)

This item allows you to enable or disable the onboard LAN Boot ROM function.

Press <Esc> to return to the main menu setting page.

Power Management Setup

This page sets up some parameters for system power management operation.

CMOS Setup Utility - Copyright (C) 1985-2004, American Megatrends, Inc.
Power Management Features

Suspend mode	[S3]	Help Item
APM Power Management	[Enabled]	Select the ACPI state used for System Suspend.
Repost Video on S3 Resume	[No]	
Suspend Time Out	[Disabled]	
Power Button Mode	[On/Off]	
Restore on AC Power Loss	[Power Off]	
PS/2 Keyboard Wakeup	[Disabled]	
PS/2 Mouse Wakeup	[Disabled]	
Resume On Ring	[Disabled]	
Resume On LAN	[Disabled]	
Resume On PME#	[Enabled]	
USB Device Wakeup From S3	[Disabled]	
Resume On RTC Alarm	[Disabled]	

↑↓ → ← : Move Enter: Select +/-: Value F10: Save ESC: Exit F1: General help
F7: Previous Values F8: Fail-Safe Defaults F9: Optimized Defaults

Suspend mode (S3)

After the selected period of system inactivity, all devices expect the CPU shut off.

APM Power Management (Enabled)

Use this item to enable or disable a power management scheme. If you enable power management, you can use the items below to set the power management operation. Only APM is supported.

Repost Video on S3 Resume (No)

If STR mode or Auto mode is selected, this item allows you to enable/disable this function.

Suspend Time Out (Disabled)

This sets the timeout for Suspend mode in minutes. If the time selected passes without any system activity, the computer will enter power-saving Suspend mode.

Power Button Mode (On/Off)

This item lets you install a software power down controlled by the normal power button on your system.

Restore on AC Power Loss (Power Off)

This item defines how the system will act after AC power loss during system operation. When you set to Off, it will keep the system in Off state until the power button is pressed.

PS/2 Keyboard/Mouse Wakeup (Disabled)

These items enable or disable you to allow keyboard or mouse activity to awaken the system from power saving mode.

Resume On Ring (Disabled)

The system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the Modem. You must use an ATX power supply in order to use this feature.

Resume On LAN (Disabled)

The system can be turned off with a software command. If you enable this item, the system can automatically resume on LAN. You must use an ATX power supply in order to use this feature.

Resume On PME# (Enabled)

The system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the PCI Modem or PCI LAN card. You must use an ATX power supply in order to use this feature. Use this item to do wake-up action if inserting the PCI card.

USB Device Wakeup From S3 (Disabled)

This item allows you to enable/disable the USB device Wakeup function from S3/S4 mode.

Resume On RTC Alarm (Disabled)

The system can be turned off with a software command. If you enable this item, the system can automatically resume at a fixed time based on the system's RTC (realtime clock). Use the items below this one to set the date and time of the wake-up alarm. You must use an ATX power supply in order to use this feature.

Press <Esc> to return to the main menu setting page.

Hardware Health Configuration

This page helps you set up some parameters for the hardware monitoring function of this motherboard.

CMOS Setup Utility - Copyright (C) 1985-2004, American Megatrends, Inc.
Hardware Health Configuration

Case Open Warning	[Disabled]	Help Item
Shutdown Temperature	[Disabled]	
Hardware Health Configuration		Options Disabled Enabled
Current SYSTEM Temperature	:39° C/102° F	
Current CPU Temperature	:38° C/100° F	
SYS FAN Speed	:0 RPM	
CPU FAN Speed	:3924RPM	
PWR FAN Speed	: 0 RPM	
CPU Vcore	: 1.353V	
1.5V	: 1.516V	
3.3V	: 3.338V	
5.0V	: 5.094V	
Battery Voltage	: 3.258V	

↑↓ → ← : Move Enter : Select +/- : Value F10: Save ESC: Exit F1: General help
F7: Previous Values F8: Best Performance Settings F9: Optimized Defaults

Case Open Warning (Disabled)

Enables or disables the features of recording the chassis intrusion status; Once the chassis is opened, a warning message will be issued.

Shutdown Temperature (Disabled)

Enables you to set the maximum temperature the system can reach before powering down.

Press <Esc> to return to the main menu setting page.

BIOS Security Features

This page helps you set up some parameters for the hardware monitoring function of this motherboard.

CMOS Setup Utility - Copyright (C) 1985-2004, American Megatrends, Inc.
BIOS Security Features

Security Settings		Help Item
Supervisor Password	: Not Installed	Install or Change the password.
User Password	: Not Installed	
Change Supervisor Password	[Press Enter]	
Change User Password	[Press Enter]	
Boot Sector Virus Protection	[Disabled]	

↑↓ → ← : Move Enter : Select +/- : Value F10: Save ESC: Exit F1: General help
F7: Previous Values F8: Best Performance Settings F9: Optimized Defaults

Supervisor Password/User Password (Not Installed)

This item indicates whether a supervisor password/user password has been set. If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

Change Supervisor Password/Change User Password (Press Enter)

You can select this option and press <Enter> to access the sub menu. You can use the sub menu to change the supervisor password.

Boot Sector Virus Protection (Disabled)

If set to Disabled, when anything attempts to access the boot sector or hard disk partition table, there will be no warning message to appear.

Press <Esc> to return to the main menu setting page.

Load Optimal Defaults

This option opens a dialog box that lets you install optimized defaults for all appropriate items in the Setup Utility. Press <OK> and then <Enter> to install the defaults. Press <Cancel> and then <Enter> to not install the defaults. The optimized defaults place demands on the system that may be greater than the performance level of the components, such as the CPU and the memory. You can cause fatal errors or instability if you install the optimized defaults when your hardware does not support them. If you only want to install setup defaults for a specific option, select and display that option, and then press <F9>.

Load Failsafe Defaults

This option opens a dialog box that lets you install fail-safe defaults for all appropriate items in the Setup Utility: Press <OK> and the <Enter> to install the defaults. Press <Cancel> and then <Enter> to not install the defaults. The fail-safe defaults place no great demands on the system and are generally stable. If your system is not functioning correctly, try installing the fail-safe defaults as a first step in getting your system working properly again. If you only want to install fail-safe defaults for a specific option, select and display that option, and then press <F8>.

Save Changes and Exit

Highlight this item and press <Enter> to save the changes that you have made in the Setup Utility and exit the Setup Utility. When the Save and Exit dialog box appears, press <OK> to save and exit, or press <Cancel> to return to the main menu:

Discard Changes and Exit

Highlight this item and press <Enter> to discard any changes that you have made in the Setup Utility and exit the Setup Utility. When the Exit Without Saving dialog box appears, press <OK> to discard changes and exit, or press <Cancel> to return to the main menu.



If you have made settings that you do not want to save, use the “Discard Changes and Exit” item and press <OK> to discard any changes you have made.

Chapter 4

Using the Motherboard Software

About the Software CD-ROM

The support software CD-ROM that is included in the motherboard package contains all the drivers and utility programs needed to properly run the bundled products. Below you can find a brief description of each software program, and the location for your motherboard version. More information on some programs is available in a README file, located in the same directory as the software.



Never try to install all software from folder that is not specified for use with your motherboard.

Before installing any software, always inspect the folder for files named README.TXT, INSTALL.TXT, or something similar. These files may contain important information that is not included in this manual.

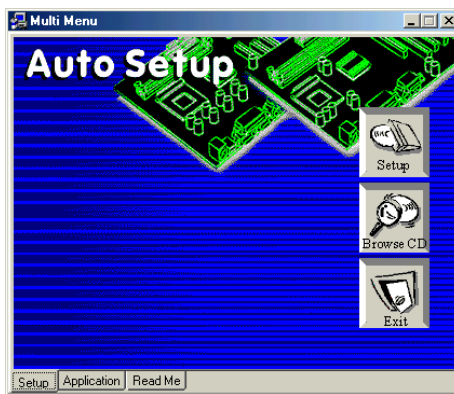
Auto-installing under Windows 98/ME/2000/XP

The Auto-install CD-ROM makes it easy for you to install the drivers and software for your motherboard.



If the Auto-install CD-ROM does not work on your system, you can still install drivers through the file manager for your OS (for example, Windows Explorer). Refer to the Utility Folder Installation Notes later in this chapter.

The support software CD-ROM disc loads automatically under Windows 98/ME/2000/XP. When you insert the CD-ROM disc in the CD-ROM drive, the autorun feature will automatically bring up the install screen. The screen has three buttons on it, Setup, Browse CD and Exit.



If the opening screen does not appear; double-click the file "setup.exe" in the root directory.

Using the Motherboard Software

Setup Tab

Setup	Click the Setup button to run the software installation program. Select from the menu which software you want to install.
Browse CD	The Browse CD button is the standard Windows command that allows you to open Windows Explorer and show the contents of the support CD. Before installing the software from Windows Explorer, look for a file named README.TXT, INSTALL.TXT or something similar. This file may contain important information to help you install the software correctly. Some software is installed in separate folders for different operating systems, such as DOS, WIN NT, or WIN98/95. Always go to the correct folder for the kind of OS you are using. In install the software, execute a file named SETUP.EXE or INSTALL.EXE by double-clicking the file and then following the instructions on the screen.
Exit	The EXIT button closes the Auto Setup window.

Application Tab

Lists the software utilities that are available on the CD.

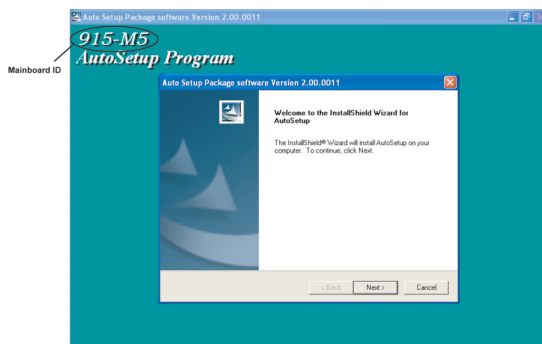
Read Me Tab

Displays the path for all software and drivers available on the CD.

Running Setup

Follow these instructions to install device drivers and software for the motherboard:

1. Click **Setup**. The installation program begins:

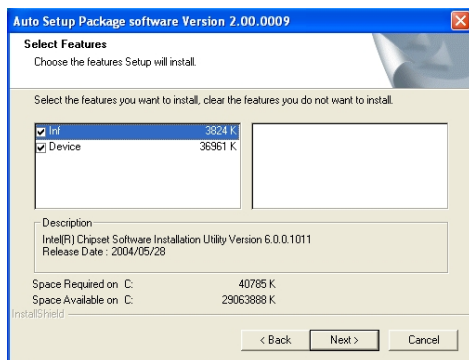


The following screens are examples only. The screens and driver lists will be different according to the motherboard you are installing.

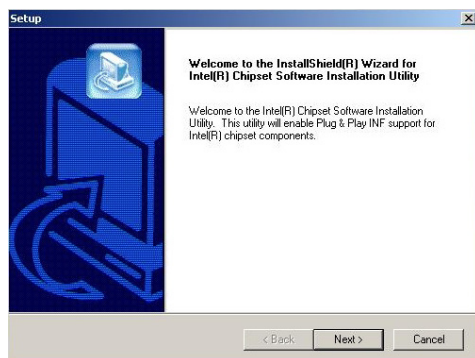
The motherboard identification is located in the upper left-hand corner.

Using the Motherboard Software

2. Click **Next**. The following screen appears:



3. Check the box next to the items you want to install. The default options are recommended.
4. Click **Next** run the Installation Wizard. An item installation screen appears:



5. Follow the instructions on the screen to install the items.

Drivers and software are automatically installed in sequence. Follow the onscreen instructions, confirm commands and allow the computer to restart a few times to complete the installation.

Manual Installation

Insert the CD in the CD-ROM drive and locate the PATH.DOC file in the root directory. This file contains the information needed to locate the drivers for your motherboard.

Look for the chipset and motherboard model; then browse to the directory and path to begin installing the drivers. Most drivers have a setup program (SETUP.EXE) that automatically detects your operating system before installation. Other drivers have the setup program located in the operating system subfolder.

If the driver you want to install does not have a setup program, browse to the operating system subfolder and locate the readme text file (README.TXT or README.DOC) for information on installing the driver or software for your operating system.

Utility Software Reference

All the utility software available from this page is Windows compliant. They are provided only for the convenience of the customer. The following software is furnished under license and may only be used or copied in accordance with the terms of the license.



These software(s) are subject to change at anytime without prior notice. Please refer to the support CD for available software.

AMI/AWARD Flash Memory Utility

This utility lets you erase the system BIOS stored on a Flash Memory chip on the motherboard, and lets you copy an updated version of the BIOS to the chip. Proceed with caution when using this program. If you erase the current BIOS and fail to write a new BIOS, or write a new BIOS that is incorrect, your system will malfunction. Refer to Chapter 3, Using BIOS for more information.

WinFlash Utility

The Award WinFlash utility is a Windows version of the DOS Award BIOS flash writer utility. The utility enables you to flash the system BIOS stored on a Flash Memory chip on the motherboard while in a Windows environment. This utility is currently available for WINXP\ME\2000\98SE. To install the WinFlash utility, run WINFLASH.EXE from the following directory: \UTILITY\WINFLASH 1.51

This concludes Chapter 4.